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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,879	02/17/2005	Sung Chul Juh	P26588	5668
7055 7590 06/05/2007 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			EXAMINER JOSEPH, DENNIS P	
			ART UNIT 2629	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/524,879	JUH ET AL.	
	Examiner	Art Unit	
	Dennis P. Joseph	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/17/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/524,879.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/17/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to application No. 10/524,879 on February 17, 2005.

Claims 1-20 are pending and have been examined.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections – 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1, 3-7 and 18-20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites therein, “any perceivable pattern” The limitation is indefinite because it doesn’t limit the object type which can illuminate. Appropriate correction is required.

For purposes of examination, the limitation will be interpreted as an input device such as a finger.

Similar issues with Claims 2 and 9. Appropriate correction is required.

Claim Rejections – 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-9 and 17-20** rejected under 35 U.S.C. 102(e) as being anticipated by **Low et al.**
(US 2004/0046741 A1)

7. Low teaches in Claim 1:

A pointing device ([0007], “peripheral input device for controlling movements on a display screen.”) comprising:

a light emitting means for illuminating a subject (Figure 4, **108**, [0044], “By way of example, the light source **108** may correspond to a light emitting diode (LED) such as a visible light LED or an infrared LED.”) selected from the group consisting of a surface of a finger, a lattice, and any perceivable pattern ([0044], “These images may be used to determine the direction, position, speed, and acceleration of the moving (or stationary) finger.”);

a hole through which light from the light emitting means is transmitted (Figure 4, **105**, [0043], “That is, the movement area 105 provides a boundary for forming the active portion of the touch pad **102**.”);

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an image-acquisition area for taking an image of the subject from the transmitted light (Figure 4, **110**, [0044], “image acquisition sensor **110**”);

an image-formation means for forming an image by focusing the light reflected from the image-acquisition area; (Figure 4, lens **124**, [0047], “lens **124** may be provided to focus the image onto the sensor **110**.”)

a conversion means for converting the image formed by the image-formation means into an electric signal (Figure 4, **112**, [0045], “The image acquisition sensor **110** may be combined with other elements to form a bundled package. For example, it may be combined with elements that are configured to compare the most recent image to the past images to determine the **direction, position, speed, and acceleration** of finger movement, and/or elements that are configured to output this data to other devices. The elements may also be configured to drive the operation of the light source. By way of example, the image acquisition sensor may be operatively coupled to a microcontroller **112**, which is capable of **implementing those tasks**.” The microcontroller is responsible for determining the values which make up the signal.); and

an operation means for detecting the change of the image and calculating the amount of the change using the electric signal output from the conversion means. (Figure 4, microcontroller **112**, which is part of **110**.)

8. Low teaches in Claim 2:

A pointing device ([0007], “peripheral input device for controlling movements on a display screen.”) comprising:

a light emitting means (Figure 4, **108**, [0044], “By way of example, the light source **108** may correspond to a light emitting diode (LED) such as a visible light LED or an infrared LED.”);

a light guide structure for guiding light from the light emitting means (Figure 4, **114**, “The optical system 114 may be any device or devices that directs the light to the desired area. By way of example, the optical system **114** may correspond to a light conduit such as a light pipe or **light guide** or it may correspond to a combination of optical elements such as lens, mirrors, prisms and the like.”) to a subject selected from the group consisting of a surface of a finger, a lattice, and any perceivable pattern ([0044], “These images may be used to determine the direction, position, speed, and acceleration of the moving (or stationary) finger.”);

an image-acquisition area for taking an image of the subject from the guided light (Figure 4, **110**, [0044], “image acquisition sensor **110**”);

an image-formation means for forming an image by focusing the light reflected from the image-acquisition area (Figure 4, lens **124**, [0047], “lens **124** may be provided to focus the image onto the sensor **110**.”);

a conversion means for converting the image formed by the image-formation means into an electric signal (Figure 4, **112**, [0045], “The image acquisition sensor **110** may be combined with other elements to form a bundled package. For example, it may be combined with elements that are configured to compare the most recent image to the past images to determine the **direction, position, speed, and acceleration** of finger movement, and/or elements that are configured to output this data to other devices. The elements may also be configured to drive the operation of the light source. By way of example, the image acquisition sensor may be

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operatively coupled to a microcontroller **112**, which is capable of **implementing those tasks.**"

The microcontroller is responsible for determining the values which make up the signal.); and

an operation means for detecting the change of the image and calculating the amount of the change using the electric signal output from the conversion means. (Figure 4, microcontroller **112**, which is part of **110**.)

9. Low teaches in Claim 3:

The pointing device ([0007], "peripheral input device for controlling movements on a display screen.") as defined by claim 1, wherein the light emitting means is selected from the group consisting of a light emitting diode, a laser diode, and an organic electroluminescence. (Figure 4, **108**, [0044], "By way of example, the light source **108** may correspond to a light emitting diode (LED) such as a visible light LED or an infrared LED.")

10. Low teaches in Claim 4:

The pointing device ([0007], "peripheral input device for controlling movements on a display screen.") as defined by claim 3, wherein the light emitting means comprises at least one light emitting diode. (Figure 4, **108**, [0044], "By way of example, the light source **108** may correspond to a light emitting diode (LED) such as a visible light LED or an infrared LED.")

11. Low teaches in Claim 5:

The pointing device ([0007], "peripheral input device for controlling movements on a display screen.") as defined by claim 1, wherein the conversion means is a CMOS image sensor

or a CCD image sensor. ([0044], “image acquisition sensor **110** may correspond to a CMOS image sensor.”)

12. Low teaches in Claim 6:

The pointing device ([0007], “peripheral input device for controlling movements on a display screen.”) as defined by claim 1, further comprising a selection button for selecting a target with a pointer moved by the pointing device or entering a command. ([0027], “the peripheral input device **20** may also include one or more buttons that provide a clicking action for performing actions on the display screen. By way of example, the actions may include selecting an item on the screen, opening a file or document, executing instructions, starting a program, viewing a menu, and/or the like.”)

13. Low teaches in Claim 7:

The pointing device ([0007], “peripheral input device for controlling movements on a display screen.”) as defined by claim 1, wherein the image-formation means is one selected from the group consisting of a spherical or non-spherical lens and a spherical or non-spherical mirror. (Figure 4, lens **124**, [0047], “lens **124** may be provided to focus the image onto the sensor **110**.” Figure 4 shows a spherical-shaped lens.)

14. Low teaches in Claim 8:

A pointing device ([0007], “peripheral input device for controlling movements on a display screen.”) comprising:

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a light emitting means (Figure 4, **108**, [0044], “By way of example, the light source **108** may correspond to a light emitting diode (LED) such as a visible light LED or an infrared LED.”);

a light guide structure for guiding light from the light emitting means to a subject (Figure 4, **114**, “The optical system 114 may be any device or devices that directs the light to the desired area. By way of example, the optical system **114** may correspond to a light conduit such as a light pipe or **light guide** or it may correspond to a combination of optical elements such as lens, mirrors, prisms and the like.”);

an image-acquisition area for taking an image of the subject from the guided light (Figure 4, **110**, [0044], “image acquisition sensor **110**”);;

an image-formation means for forming an image by focusing the light reflected from the image-acquisition area (Figure 4, lens **124**, [0047], “lens **124** may be provided to focus the image onto the sensor **110**.”);

a housing coupled to the image-formation means (Figure 4, housing **104**);

a conversion means for converting the image formed by the image-formation means into an electric signal (Figure 4, **112**, [0045], “The image acquisition sensor **110** may be combined with other elements to form a bundled package. For example, it may be combined with elements that are configured to compare the most recent image to the past images to determine the **direction, position, speed, and acceleration** of finger movement, and/or elements that are configured to output this data to other devices. The elements may also be configured to drive the operation of the light source. By way of example, the image acquisition sensor may be

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operatively coupled to a microcontroller **112**, which is capable of **implementing those tasks.**"

The microcontroller is responsible for determining the values which make up the signal.);

a printed circuit board on which the conversion means is fixed (The microcontroller is a PCB);

a cover for protecting the light emitting means, the image-formation means, the housing, the conversion means, and the printed circuit board (Figure 7, **212**, [0055], "In one embodiment, the inner shell **222** is configured to cover the electronic components disposed on the PCB **210**"); and

an operation means for detecting the change of the image and calculating the amount of the change using the electric signal output from the conversion means. (Figure 4, microcontroller **112**, which is part of **110**.)

15. Low teaches in Claim 9:

The pointing device ([0007], "peripheral input device for controlling movements on a display screen.") as defined by claim 8, wherein the subject is one selected from the group consisting of a surface of a finger, a lattice, and any perceivable pattern. ([0044], "These images may be used to determine the direction, position, speed, and acceleration of the moving (or stationary) finger.")

16. Low teaches in Claim 17:

The pointing device ([0007], "peripheral input device for controlling movements on a display screen.") as defined by claim 8, wherein the light guide structure (Figure 4, **114**), the

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image-formation means (Figure 4, **124**), and the housing (Figure 4, **104**) are united as an integral structure. (Figure 4 shows them all to be part of the same structure.)

17. Low teaches in Claim 18:

The pointing device ([0007], “peripheral input device for controlling movements on a display screen.”) as defined by claim 1, wherein the image-acquisition area (Figure 4, **110**) is coated in order to prevent damage or contamination of the image-acquisition area. ([0048], “The housing **154** is generally formed from a translucent or semi-translucent material that also provides strength and durability for protecting the internal components of the device **150**.”)

18. Low teaches in Claim 19:

The pointing device ([0007], “peripheral input device for controlling movements on a display screen.”) as defined by claim 1, wherein the operation means receives the electric signal from the conversation means and determines the distance and direction for a pointer to be moved by calculating the electric signal. (Figure 4, **112**, [0045], “The image acquisition sensor **110** may be combined with other elements to form a bundled package. For example, it may be combined with elements that are configured to compare the most recent image to the past images to determine the **direction, position, speed, and acceleration** of finger movement, and/or elements that are configured to output this data to other devices. The elements may also be configured to drive the operation of the light source. By way of example, the image acquisition sensor may be operatively coupled to a microcontroller **112**, which is capable of **implementing those tasks**.” The microcontroller is responsible for determining the values which make up the signal.)

19. Low teaches in Claim 20:

The pointing device ([0007], “peripheral input device for controlling movements on a display screen.”) as defined by claim 1, wherein the image-acquisition area (Figure 4, **110**) is a transparent member or a virtual plane positioned at a predetermined distance from the image-formation means. (Figure 4 shows lens **124** to be a predetermined distance area from the image-acquisition sensor **110**. This setup is indicative of a virtual plane.)

Claim Rejections – 35 USC § 103

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 103(a) that forms the basis for the rejections under this section made in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

21. **Claims 10-16** rejected under 35 U.S.C. 103(a) as being unpatentable over **Low et al.**

(US 2004/0046741 A1) in view of **Junod et al.** (US 2002/0126094 A1)

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22. Low teaches in Claim 10:

The pointing device ([0007], “peripheral input device for controlling movements on a display screen.”) as defined by claim 8, but

Low does not explicitly teach that the input device is “further comprising a contact sensor for determining whether the pointing device is in use.”

However, in the same field of endeavor, optical mice, Junod teaches of a “hand detect circuit **126** for detecting the presence of a hand” (Junod, [0044]) and “capacitive hand detection circuit embodiment for direct and indirect coupling of the hand” ([0017]) This circuit can determine if the point device is in use or not. Figure 7 shows the hand detect circuit along with the electrodes **122** and **124** used for the detection. This hand circuit would be placed on the **top part of the mouse housing** to detect user movement to awake from sleep mode.

Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to integrate the hand detect circuit as taught by Junod with Low’s optical mouse with the motivation that this detection circuit will allow the use of a sleep mode and can save power when the mouse is not in use. “The hand presence is used to wake up from the sleep mode.” (Junod, [0049])

23. Low and Junod teach in Claim 11:

The pointing device (Junod, [0012], “an input device having a housing and electronic circuitry for detecting user inputs”) as defined by claim 10, wherein the contact sensor ([0044], “hand detect circuit 126”) is embodied by means of a direct contact or non-contact fashion. ([0017], “capacitive hand detection circuit embodiment for direct and indirect coupling of the hand”)

24. Low and Junod teach in Claim 12:

The pointing device (Junod, [0012], “an input device having a housing and electronic circuitry for detecting user inputs”) as defined by claim 10, wherein the contact sensor ([0044], “hand detect circuit 126”) controls an on-off state of the light emitting means or the conversion means based on whether the contact sensor is touched by a human body or an object. ([0014], “In one embodiment, a sleep mode is provided for the electronic circuitry to conserve power. The hand detect signal will awaken the input device from its sleep mode.” Sleep mode represents the ‘off’ state.)

25. Low and Junod teach in Claim 13:

The pointing device (Junod, [0012], “an input device having a housing and electronic circuitry for detecting user inputs”) as defined by claim 10, wherein the contact sensor ([0044], “hand detect circuit 126”) is positioned around the image-acquisition area within a radius of about 3 cm from the center of the image acquisition area. (The contact sensor is located at the top part of the mouse housing and the image acquisition area 110 as taught by Low is located

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near the bottom of the mouse housing. Therefore the distance between them is roughly the distances between the top and the bottom of a mouse which is roughly 3 cm.)

26. Low and Junod teach in Claim 14:

The pointing device (Junod, [0012], “an input device having a housing and electronic circuitry for detecting user inputs”) as defined by claim 10, wherein the contact sensor ([0044], “hand detect circuit **126**”) operates the pointing device only for a program requiring the pointing device. ([0045], “When the device enters a sleep mode, such as described above, the switch disconnects the external capacitor **132** and RF circuit **128**, and connects to a hand detect circuit **126**.”)

27. Low and Junod teach in Claim 15:

The pointing device (Junod, [0012], “an input device having a housing and electronic circuitry for detecting user inputs”) as defined by claim 10, wherein the contact sensor ([0044], “hand detect circuit **126**”) performs the role of a selection switch for selecting the present position on a predetermined function indicated by a pointer. ([0044], “these two electrodes **122** and **124** are connected to an RF circuit **128** for driving and/or receiving signals using the electrodes **122** and **124**.”)

28. Low and Junod teach in Claim 16:

The pointing device (Junod, [0012], “an input device having a housing and electronic circuitry for detecting user inputs”) as defined by claim 15, wherein the role of the selection

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switch is performed according to the change of time interval between contact and non-contact ([0052], “In the absence of any inputs after a certain period of time, such as one minute, a true sleep mode can be entered. The controller would be in a stop mode, the RF circuitry would be turned off, and the hand detect circuit 126 would be turned on.”) to the contact sensor. ([0044], “hand detect circuit 126”)

Conclusions

29. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure. US 6,707,027 B2, US 6,351,257, US 7,133,031 B2 and US 6,833,825 B1 are cited to teach of optical mice with a similar optical detection structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis P. Joseph whose telephone number is 571-270-1459. The examiner can normally be reached on Monday-Friday, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJ

AMR A. AWAD
SUPERVISORY PATENT EXAMINER
